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Cypress Roadmap: Timing Solutions

Q2 2017



Clock Synthesizer Roadmap (NDA)

	Product Family	Features	(Prod) [EOL]	2017				2018				2019				2020				2021			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
High Performance	CY37xx	Frequency: 3.5 GHz 12 Outputs; 4 PLL; 0.09-ps RMS Jitter ¹	(Q3'18)					Concept	Concept	Concept	Concept	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
	CY34xx	Frequency: 2.1 GHz 12 Outputs; 1-4 PLL; 0.09-ps RMS Jitter	(Q1'18)		Concept	Concept	Concept	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
	CY294x	Frequency: 2.1 GHz 1 Output; 1 PLL; 0.11-ps RMS Jitter		Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
	CY27410	Frequency: 700 MHz 12 Outputs; 4 PLL; 0.7-ps RMS Jitter		Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
Standard Performance	CY2xx (FlexO™)	Frequency: 690 MHz 1 Output; 1 PLL; 0.6-ps RMS Jitter	[Q3'20]	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	EOL - LTB	EOL - LTB	EOL - LTB	EOL - LTB	EOL - LTS	EOL - LTS	EOL - LTS	EOL - LTS
	CY254x / CY251x	Frequency: 166 MHz 3-9 Outputs; 1-4 PLL; 100-ps CCJ ²		Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
	CY22800 / CY22801 / CY2429x	Frequency: 200 MHz 2-4 Outputs; 1 PLL; 250-ps CCJ		Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
	CY2239x / CY229x / CY2238x	Frequency: 200 MHz 3-6 Outputs; 3-4 PLL; 400-ps CCJ		Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production
	CY22050 / CY22150	Frequency: 200 MHz 3-6 Outputs; 1 PLL; 250-ps CCJ		Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production	Production

¹ Integrated phase noise across 12-kHz to 20-MHz offset

² Cycle-to-cycle jitter

Clock Buffer Roadmap (NDA)

Product Family	Features	(Prod) [EOL]	2017				2018				2019				2020				2021			
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
CY2DLx / DMx/DPx/CPx	Frequency: 1.5 GHz 2-10 Outputs; 0.05-ps RMS Jitter ¹ ;		Production																			
CY230x / EP0x	Frequency: 220 MHz 5-9 Outputs; 22-ps CCJ ⁴ ;		Production																			
CY230xNZ	Frequency: 133 MHz 4-18 Outputs; 250-ps CCJ;		Production																			
CY23S02/05/08/09 /FP12	Frequency: 200 MHz 2-12 Outputs; 200-ps CCJ ⁴ ;	[Q3'19]	Production				EOL - LTB				EOL - LTS											
CY7B99x (RoboClock™)	Frequency: 200 MHz 8-18 Outputs; 50-ps CCJ;	[Q3'19]	Production				EOL - LTB				EOL - LTS											

¹ Integrated phase noise across 12-kHz to 20-MHz offset

² Cycle-to-cycle jitter

Timing Solutions Portfolio (NDA)

Programmable | High-Performance | EMI Reduction | Automotive

		Clock Generators		Clock Buffers	
		Programmable Clocks	PLL ICs	Zero/Non-Zero Delay Buffer	
High Performance		<p>CY274x Q320</p> <p>Maximum Frequency: 700 MHz 12 Outputs; PCIe 3.0; 4 PLL 0.7-ps RMS Jitter¹; Ind²; Auto S⁵</p>	<p>NEW CY294x / CY5107 Q117</p> <p>Maximum Frequency: 2.1 GHz 1 Output; 40/100 GbE; 1 PLL 0.11-ps RMS Jitter; Ind</p>		
		<p>CY2Xx (FlexO™)</p> <p>Maximum Frequency: 690 MHz 1 Output; Frequency Margining 0.6-ps RMS Jitter; Ind</p>	<p>NEW CY34xx Q317</p> <p>Maximum Frequency: 2.1 GHz 0.1-ps RMS Jitter Contact Sales</p>	<p>MB15F63UL Q218</p> <p>Maximum Input Frequency: 2 GHz Sigma-Delta and Integer PLL; -88.5 dBc/Hz CNR⁴; Ind</p>	<p>CY2DLx/DMx/DPx/CPx</p> <p>Maximum Frequency: 1.5 GHz 2-10 Outputs; LVDS, LVPECL, CML 0.05-ps RMS Jitter; Ind</p>
Standard Performance		<p>CY254x/CY251x</p> <p>Maximum Frequency: 166 MHz 3-9 Outputs; 1-4 PLL; I²C 100-ps CCJ⁶; Ind</p>	<p>CY2239x/CY229x/CY2238x</p> <p>Maximum Frequency: 200 MHz 3-6 Outputs; 3-4 PLL; I²C 400-ps CCJ; Ind; Auto E⁷</p>	<p>MB15E07SL/05SL/03SL Q218</p> <p>Maximum Input Frequency: 2.5GHz 1 PLL; < 4mA PSC⁸; Ind</p>	<p>CY230x/EP0x</p> <p>Maximum Frequency: 220 MHz 5-9 Outputs; LVCMOS 22-ps CCJ; Ind; Auto A</p>
		<p>CY22800/801/2429x</p> <p>Maximum Frequency: 200 MHz 2-4 Outputs; 1 PLL; PCIe 1.1 250-ps CCJ; Ind; Auto A³</p>	<p>CY22050/150</p> <p>Maximum Frequency: 200 MHz 3-6 Outputs; 1 PLL 250-ps CCJ; Ind</p>	<p>MB15E07SR/06SR/05SR Q218</p> <p>Maximum Input Frequency: 3GHz 1 PLL; -86 dBc/Hz CNR; Ind</p>	<p>CY230xNZ</p> <p>Maximum Frequency: 133 MHz 4-18 Outputs; LVCMOS 250-ps CCJ; Ind</p>
		<p>MB88151Ax/2Ax/3Ax/4Ax</p> <p>Maximum Frequency: 134 MHz 1 Output; 1 PLL; < 200-ps CCJ; Ind</p>	<p>MB88155x</p> <p>Maximum Frequency: 80 MHz 1 Output; 1 PLL; < 200-ps CCJ; Ind</p>	<p>MB15F78UL/73UL/72UL Q218</p> <p>Maximum Input Frequency: 2.6 GHz 2 PLL; < 2.8 mA PSC; Ind</p>	<p>CY23S02/05/08/09/FP12 Q319</p> <p>Maximum Frequency: 200 MHz 2-12 Outputs; Spread Aware 200-ps CCJ; Ind</p>
			<p>MB15F07SL Q218</p> <p>Maximum Input Frequency: 1.1 GHz 2 PLL; < 5 mA PSC; Ind</p>	<p>CY7B99x (RoboClock™) Q319</p> <p>Maximum Frequency: 200 MHz 8-18 Outputs; Configurable Skew 50-ps CCJ; Ind²</p>	

¹ Integrated phase noise across 12-kHz to 20-MHz offset

² Industrial grade: -40°C to +85°C

³ AEC-Q100: -40°C to +85°C

⁴ Carrier-to-noise ratio

⁵ AEC-Q100: -40°C to +105°C

⁶ Cycle-to-cycle jitter

⁷ AEC-Q100: -40°C to +125°C

⁸ Power supply current

Status

Availability ● This presentation QYY QYY

Concept Development Sampling Production

CY274x: High-Performance 4-PLL Clock Generator

Applications

Multifunction printers, digital TVs, Blu-ray recorders, home gateways, femtocells, routers and switches

Features

Twelve Outputs

- Eight configurable (differential or single-ended)
- Four single-ended

Specifications

- High frequency: 700-MHz differential, 250-MHz single-ended
- RMS phase jitter <0.7 ps (typical)
- Reference clock support for PCIe 3.0, SATA 2.0 and 10 GbE
- Industrial and automotive temperature grades

Additional Features

- Pin select and I²C programming
- Configurable as zero or non-zero delay buffer
- Glitch-free frequency switching
- Frequency select
- Early / late clocks
- PLL cascading
- Voltage-controlled frequency synthesis (VCFS)

Collateral

Datasheet: [4-PLL High Performance Clock Generator \(CY274X\)](#)

¹ Crystal input

² Crystal output

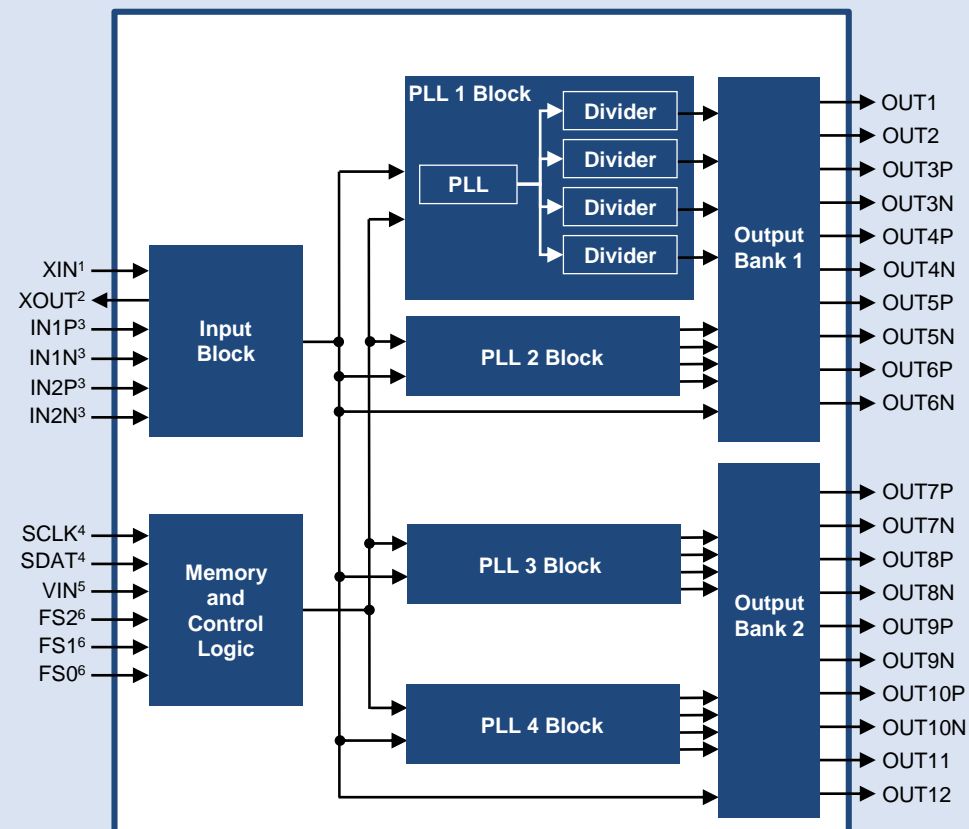
³ Reference clock inputs

⁴ Serial port

⁵ Voltage input pin for VCFS

⁶ Frequency select inputs

Four-PLL Spread-Spectrum Clock Generator



Availability

Production: Now

CY294x: High-Performance 1-PLL Programmable Oscillator

Applications

Routers, switches, base stations, storage area networks, network backplanes, wireless infrastructure, military/aerospace, video, test and measurement

Features

Outputs

- LVPECL¹, LVDS², HCSL³ and CML⁴ outputs

Specifications

- High frequency: 2,100-MHz differential, 250-MHz single-ended
- RMS phase jitter⁵ ~110 fs (typical) at all output frequencies
- Voltage-controlled frequency synthesis (VCFS) with tuneable pull range of 50 ppm to 275 ppm
- Frequency select to choose from four pre-programmed configurations
- Pin select and I²C programming
- VDD support: 1.8 V, 2.5 V and 3.3 V
- Industrial temperature grades

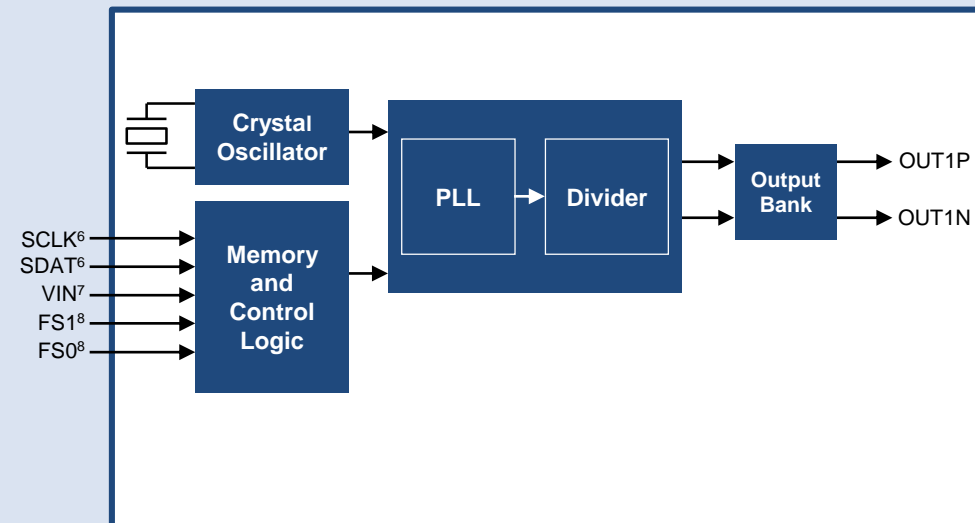
RoHS²-Compliant Packages

- Available in a 5 mm x 7 mm, 5 mm x 3.2 mm LCC package

Collateral

Datasheet: [1-PLL High-Performance Programmable Oscillator \(CY294X\)](#)

High-Performance 1-PLL Programmable Oscillator



Availability

Production: Now

¹ Low-voltage positive emitter coupled logic

² Low-voltage differential signaling

³ High-speed current steering logic

⁴ Current mode logic

⁵ The uncertainty of the clock rising and falling edge timing

⁶ I²C input

⁷ Voltage input pin for VCFS

⁸ Frequency select inputs

CY3441: High-Performance Quad-PLL Clock Synthesizers (NDA)

Applications

Routers, switches, base stations, storage area networks, network backplanes and wireless infrastructure

Features

Twelve Outputs

- Twelve outputs supporting frequencies of 8 kHz to 2,100 MHz
- Four inputs supporting frequencies of 8 kHz to 750 MHz
- Four independently configurable PLLs

Specifications

- RMS phase jitter⁶ ~110 fs (typical)
- LVPECL¹, LVDS², HCSL³, CML⁴ and LVCMOS⁵ outputs
- Fully programmable loop bandwidth of 1 mHz to 4 kHz
- Pin select and I²C programming
- Industrial temperature grades
- 64-QFN Package

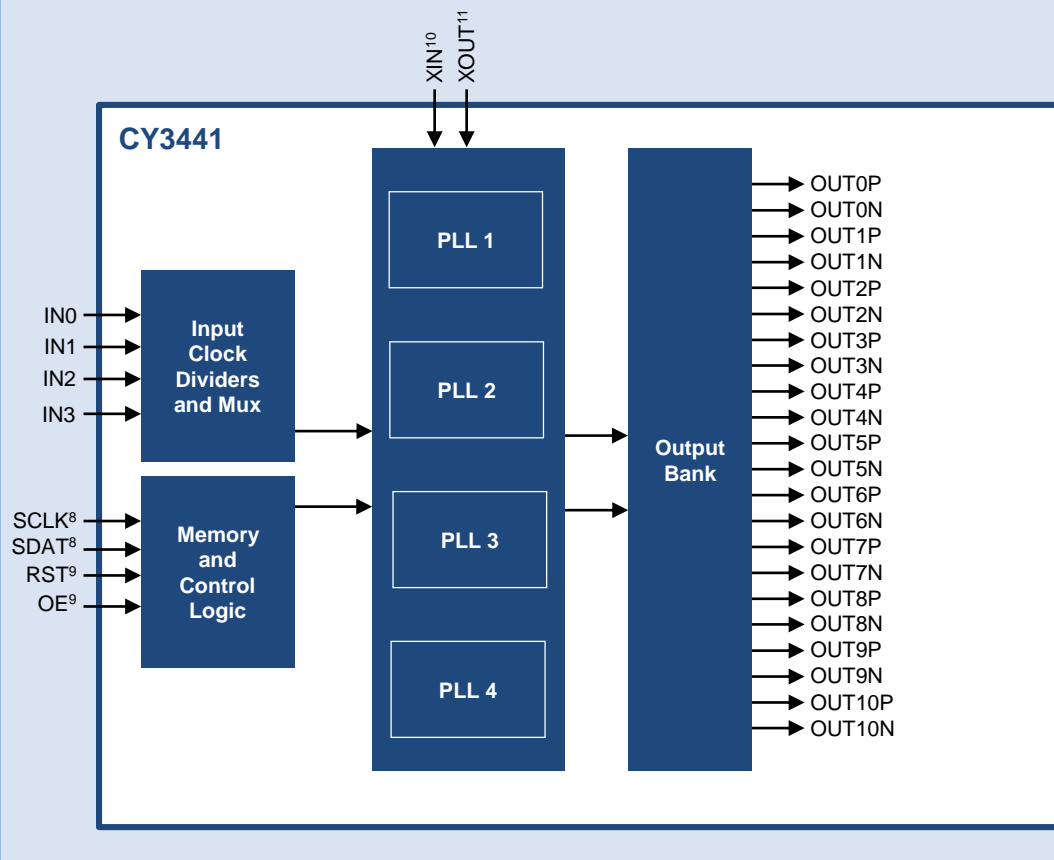
Additional Features

- Completely flexible input to output frequency translation
- Jitter attenuation
- Hitless switching⁷
- Clock monitoring with fully programmable thresholds

Collateral

Preliminary Datasheet: [Contact Sales](#)

High-Performance Quad-PLL Clock Synthesizer



Availability

[Contact Sales](#)

¹ Low-voltage positive emitter coupled logic

² Low-voltage differential signaling

³ High-speed current steering logic

⁴ Current mode logic

⁵ Low-voltage CMOS

⁶ The uncertainty of the clock rising and falling edge timing

⁷ Automatic clock switching on failure of a clock source

⁸ I²C input

⁹ Reset and output enable

¹⁰ Crystal input

¹¹ Crystal output



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